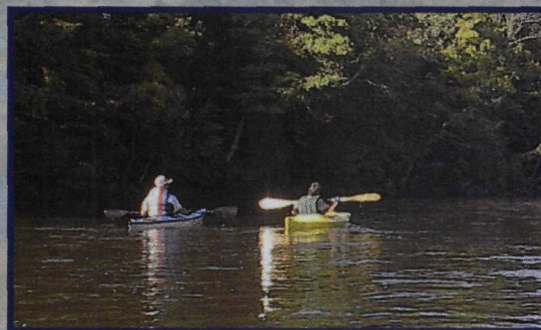




**Response to Comments on the
Stage 1 Assessment Plan for the
Kalamazoo River Environment
(November 2000)**

Final Report



Michigan Department of Environmental Quality,
Michigan Attorney General,
U.S. Fish and Wildlife Service,
and
National Oceanic and Atmospheric Administration

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1. Introduction

This document addresses the public comments that were received for the Stage I Assessment Plan for the Kalamazoo River Environment (KRE) natural resource damage assessment (NRDA) (hereafter “Plan”; Michigan Department of Environmental Quality et al., 2000). The Stage I Assessment Plan was prepared by the Director of the Michigan Department of Environmental Quality (MDEQ), the Michigan Department Attorney General, and the Secretary of the Interior as represented by the Regional Director of the U.S. Fish & Wildlife Service (U.S. FWS), in coordination with the Secretary of Commerce as represented by the National Oceanic and Atmospheric Administration (collectively referred to as the Trustees) and released to the public on November 28, 2000. All of the public comments that were received on the Plan by the Trustees are attached as an appendix to this document. This responsiveness summary is designed to assist the public in understanding the Trustees’ assessment approach and choices, in addition to the narrower goal of compliance with federal regulations at 43 C.F.R. Part 11. The Trustees have endeavored to respond to all of the comments in a manner that is logical, transparent, and complete, including releasing this responsiveness summary in conjunction with the Stage I Assessment Report, Volume 1 – Injury Assessment, and Volume 2 – Economic Assessment (hereafter “Stage I Injury Report” and “Stage I Economic Report,” respectively and “Stage I Assessment Reports,” collectively; Michigan Department of Environmental Quality et al., 2005a,b), which include additional details about the Trustees’ assessment approaches. Both reports are hereby incorporated by reference as part of this responsiveness summary.

In responding to public comments, the Trustees invoked several principles. First, the Trustees addressed each substantive comment only once, even when several commenters made the same point or a single commenter repeated a point in different contexts. Second, the Trustees distinguished between comments expressing preferences about Trustee choices within the Trustees’ discretion, comments providing opinions about whether the Trustees’ assessment approach exceeds the Trustees’ discretion under the law, and comments regarding factual information. Third, the Trustees categorized comments and responses by topic rather than sequentially by commenter and comment. Finally, in cases where further details about an issue are provided in the Stage I Assessment Reports, the reports are cited rather than repeating report content in this responsiveness summary.

The Plan describes the approaches proposed by the Trustees to conduct Stage I of the assessment. In considering the public comments on the Plan, the Trustees considered whether assessment approaches should be altered based on comments that could require one of the following three Trustee actions:

- ▶ A major change in assessment approach requiring publication of a revised assessment plan or assessment plan addendum

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- ▶ A minor change in assessment approach not requiring publication of a revised assessment plan
 - ▶ No change in the assessment approach.

In considering these three potential actions, the Trustees endeavored to represent the public fairly and equitably while considering each comment. After reviewing the comments, the Trustees determined that no major changes were required in the assessment approach sufficient to justify the publication of a revised assessment plan or assessment plan addendum. However, the Trustees note that the Stage I Assessment Reports provide considerable additional detail about the assessment approach. Further, the Trustees are considering a Stage II Assessment Plan.

2. Comments that Express Preferences

A number of comments provided the Trustees with information about various commenters' preferences regarding issues within the Trustees' discretion under the law. These comments are important for illuminating alternative choices and gauging opinions from the interested public, including identification of conflicting perspectives within the interested public.

2.1 Categories of Injury

Some comments suggested natural resource injuries that should be assessed, including impacts on angling for northern pike and other species, injuries to Lake Michigan, and Michigan water quality standards violations. The Trustees agree that water quality standards violations and impacts to fish and fishing should be included in the assessment. Chapter 3 of the Stage I Injury Report describes injuries to surface water, Chapter 5 describes fish consumption advisories, and Chapter 6 describes injuries to fish and aquatic invertebrates. In addition, Chapter 2 of the Stage I Economic Report describes recreational fishing damages that may derive from injuries to fish.

Other comments suggested eliminating categories of natural resources from injury assessment, including groundwater and all other nonbiological resources. The Trustees recognize that dropping categories of injury could simplify the assessment, but at the cost of missing potentially significant categories of natural resource injuries. The Stage I assessment is intended to identify potential injuries broadly, both to determine Stage II assessment activities and for settlement discussions with the potentially responsible parties. Therefore, Chapter 4 of the Stage I Injury Report describes injuries to sediments, Chapter 7 describes injuries to wildlife, and Chapter 8 describes indirect injuries. In addition, Chapter 3 of the Stage I Economic Report describes total values that may derive from a variety of injuries.

Broad review of all injury categories is an important element of the Stage I assessment. The Trustees recognize that the assessment may be unable to address, individually, each natural resource injury caused by the potentially responsible parties' releases of (polychlorinated biphenyls) PCBs. Nevertheless, the Trustees are committed to at least evaluate potential injuries beyond water quality standards violations and injuries to biological resources. The Trustees believe that categorically dropping all other injuries from the assessment is premature and may be inappropriate. Therefore, the Trustees will continue to evaluate the extent to which all injuries can be determined.

2.2 Categories of Damages

Some comments supported inclusion of damages beyond recreational fishing uses, while others opposed inclusion of additional categories of damages. The Trustees recognize that dropping categories of damages could simplify the assessment, but at the cost of missing potentially significant categories of public damages. The Trustees recognize that the assessment may be unable to address, individually, each natural resource service lost and each type of natural resource damage incurred because of the potentially responsible parties' releases of PCBs. Nevertheless, the Trustees are committed to at least evaluate potential damages beyond recreational fishing. The Trustees believe that categorically dropping all damages besides recreational fishing from the assessment is premature and may be inappropriate. Therefore, the Trustees will continue to evaluate the extent to which all damages can be determined. Additional information regarding damages determination is provided in the Stage I Economic Report.

2.3 Restoration Options

Many comments provided suggestions for restoration, including:

- ▶ Reduction of PCB pathways beyond actions taken for remediation
- ▶ Abatement of other pollution sources injuring the same resources that the potentially responsible parties' PCBs injure
- ▶ Removal of dams to improve habitats and recreational use
- ▶ Restoration and preservation of wetlands, floodplain forests, habitat corridors, and other habitats
- ▶ Restoration of eagles, mink, northern pike, other fish, and other taxa of biota impacted by the potentially responsible parties' PCBs

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- ▶ Deepening of parts of Lake Allegan to improve habitats and recreation
 - ▶ Preservation of open space, development of trails, and other recreational enhancements.

Another comment suggested that all recovered damages should be applied onsite rather than offsite.

The Trustees greatly appreciate all of these suggestions. The Trustees will continue to solicit restoration options and ideas. In addition, the Trustees have established focus criteria in the Stage I Economic Report, which give on-site restoration projects a higher weight than off-site projects. However, the Trustees note that off-site restoration opportunities will also be considered because other restoration criteria such as implementability, feasibility, cost-effectiveness, and overall benefit will also be used to select between restoration options. Nevertheless, the Trustees recognize and are committed to the need to link restoration to the injured natural resources. The Trustees have published additional information about restoration planning in Chapter 4 of the Stage I Economic Report, including information in Section 4.2 about the criteria that the Trustees propose to use to evaluate restoration options.

2.4 Ecosystem Approach

Several comments supported the use of an ecosystem approach. The Trustees remain committed to this approach. Further examples of the ecosystem approach are provided in the Stage I Assessment Reports.

2.5 Inclusion of Lake Michigan

Some comments supported inclusion of Lake Michigan in the assessment, while others opposed this. The Trustees recognize that dropping Lake Michigan could simplify the assessment, but at the cost of missing a likely significant component of public damages. The Trustees also recognize that the assessment may be unable to cover all locations where the potentially responsible parties' PCBs have come to be located, including areas beyond Lake Michigan. Nevertheless, the Trustees are committed to at least evaluate potential damages arising from Lake Michigan exposures and potential injuries. The Trustees believe that categorically dropping Lake Michigan from the assessment is premature and may be inappropriate. Therefore the Trustees will continue to evaluate the extent to which damages can be determined in Lake Michigan and beyond. Additional information regarding Lake Michigan is provided in the Stage I Assessment Reports, including discussions of PCB releases and pathways in Chapter 2 of the Stage I Injury Report, and recreational fishing damages associated with Lake Michigan in Chapter 2 of the Stage I Economic Report.

2.6 Uniqueness of the KRE

One comment suggested that analysis of the uniqueness of the KRE is unnecessary because few sites provide truly unique recreation and many recreational substitutes exist near the KRE. The Trustees disagree that the type of recreation provided by a site is the only attribute conferring uniqueness. Furthermore, the Trustees disagree that an assumption about KRE uniqueness is better than an assessment of the uniqueness of the site. Therefore, the Trustees will continue to evaluate whether the uniqueness of the KRE is important in the design of economic measures of damages.

2.7 Relationship to RI/FS

Some comments suggested that previous comments on the remedial investigation and feasibility study (RI/FS), and actions taken for remediation, should be considered in the assessment. Other comments suggested that remedial actions and restoration actions should be kept distinct. The Trustees concur that the NRDA must be conducted in a manner that considers relevant information generated by the RI/FS process, that accounts for the effect of remediation on damages, and that avoids confusion between remedial actions and cleanup costs versus natural resource damage liability and restoration. The Trustees are committed to assessing natural resource damages that arise because of necessary remedial actions, avoiding restoration actions that will be unnecessary or infeasible because of necessary remedial actions, and ensuring efficient and transparent transfer of relevant information between the RI/FS and NRDA processes. Additional information about the relationship between the NRDA and RI/FS processes is provided in Chapter 8 the Stage I Injury Report and Chapter 1 of the Stage I Economic Report.

2.8 Detail of the Plan

Several comments requested additional assessment plan details, and expressed concern about possible Trustee focus during Stage I assessment. The Trustees considered these concerns and present full details of the Stage I assessment in the Stage I Assessment Reports.

2.9 PRP Involvement

Some comments advised the Trustees to prevent potentially responsible party participation in the assessment, or to scrutinize data generated by the potentially responsible parties to ensure that the data are presented in a valid context. The Trustees agree that the potentially responsible parties occupy a unique status in the assessment since they may be held liable to pay for the

restoration required to make the public whole. However, although the law allows the Trustees to assess damages unilaterally without participation by the potentially responsible parties, the discretionary regulations require that the Trustees afford the potentially responsible parties with reasonable opportunities to participate in the assessment as a condition for receiving a “rebuttable presumption” in administrative and judicial proceedings. Furthermore, the Trustees believe that participation by the potentially responsible parties in the assessment may help resolve technical issues or clarify which issues remain in dispute. This process will give the public additional opportunities to understand both the Trustees’ and the potentially responsible parties’ positions whether settlement is reached or litigation required. Therefore, the Trustees will continue to offer the potentially responsible parties reasonable opportunities to participate in the assessment.

Regarding data generated by the potentially responsible parties, the Trustees agree that scrutiny is required to ensure that the data are placed in the appropriate context for the assessment. However, this scrutiny applies to data collected by other parties, including the Trustees. The Trustees are committed to using appropriate and relevant data in a manner that supports valid assessment determinations by the Trustees.

3. Comments that Express Opinions about the Scope of Trustee Authority

A number of comments, particularly those made on behalf of the potentially responsible parties, *express opinions that the Trustees’ assessment approaches may exceed their authority*, either under nondiscretionary law (particularly the Comprehensive Environmental Response, Compensation, and Liability Act or “CERCLA”) or under the discretionary federal regulations at 43 C.F.R. Part 11. The Trustees have considered whether changes are required in the assessment approaches to comply with the law, whether any changes would be needed to preserve their “rebuttable presumption” afforded by following the discretionary regulations, or whether the Trustees disagree with the expressed opinion.

3.1 Timeline for Damages

Some comments suggested that damages should be assessed from the early 1950s until as far into the future as possible. Although the Trustees could, in theory, pursue common law theories to prove damages arising before enactment of the statutes that authorize NRDA, there are many advantages for using the statutory provisions of NRDA. The two primary statutes that authorize NRDA for sites like the KRE and hazardous substances like PCBs are the Federal Water Pollution Control Act (Clean Water Act, or CWA) and CERCLA, which authorized natural

resource damage claims in 1977 and 1980, respectively. The Trustees' assessment is being conducted primarily under statutory authorities. Therefore, the assessment will continue to focus on damages beginning with the statutory authorizations in 1977 and 1980.

The Trustees agree that damages should be assessed into the future as far as practicable and reasonable. However, the Trustees note that, because of discounting, damages far into the future (especially beyond 30 years) rarely add significantly to total damages, even when the injuries are not expected to decline significantly. In addition, predicting environmental conditions accurately and reliably becomes more difficult as predictive time frames lengthen.

3.2 Required Analyses

The potentially responsible parties made a number of comments about required analyses regarding screening approaches, baseline determination, injury quantification, and economics. The Trustees agree that many of the analyses described by the potentially responsible parties could be used for NRDA. However, the Trustees disagree that the analyses must be used in the manner indicated by the potentially responsible parties. Further responses regarding required analyses are provided below, and additional information about the Trustees' assessment approaches and analyses are provided in the Stage I Assessment Reports.

3.2.1 Screening approaches

One comment supported the use of screening approaches, which compare site chemistry data to criteria, standards, thresholds, or benchmarks, as a cost-effective analysis to provide preliminary information for settlement discussions, to frame the full assessment, and to begin restoration planning. However, the comment cautioned that screening approaches cannot be used to determine injury. The Trustees agree that screening approaches can be used as the potentially responsible parties suggest, but do not agree that the use of screening approaches is necessarily as limited as the potentially responsible parties suggest. For instance, in Stage I, the Trustees used standards and criteria established by the State of Michigan (e.g., water quality standards) and the federal government (e.g., federal water quality criteria, Food and Drug Administration tolerance levels, and Safe Drinking Water Act standards) to determine injuries, per federal regulations at 43 C.F.R. Part 11 (see Chapters 3 and 5 of the Stage I Injury Report). Furthermore, the Trustees classified biological injuries using both screening approaches and review of site-specific studies (see Chapters 6 and 7 of the Stage I Injury Report).

3.2.2 Baseline

One comment stated that baseline analyses must be included in the assessment, including analysis of adverse ecological impacts resulting from causes other than PCBs, analysis of sources of PCBs other than the identified potentially responsible parties, and analysis of factors such as industrial development that may reduce the demand for services provided by natural resources. A related comment suggests that the Trustees must account for how the ownership and operation of dams by the Michigan Department of Natural Resources may have affected the distribution and bioavailability of PCBs. The Trustees agree that baseline should be characterized in the assessment to determine and quantify damages for which the potentially responsible parties may be liable. However, there are many approaches for making baseline comparisons that do not require detailed analyses of other sources of harm, such as conducting studies with appropriate reference sites. Furthermore, the Trustees are not required to establish the liability of all parties, nor are they required to apportion damages between potentially responsible parties, particularly where the harm is not practically divisible. Furthermore, the Trustees disagree that the potentially responsible parties are not liable for damages caused by PCBs that they released if public agencies managed facilities such as dams that may have influenced distribution and bioavailability of PCBs.

For the Stage I assessment, the Trustees segregated PCBs from other contaminants by using a screening approach that relied primarily on PCB chemistry data (i.e., determining where PCB concentrations were sufficient to cause injuries; see Chapters 4-7 of the Stage I Injury Report). Therefore, this approach addresses the potentially responsible parties' concerns regarding baseline consideration of other contaminants. In addition, the Trustees evaluated the contribution of PCBs to the KRE by potentially responsible parties versus other sources (see Chapter 2 of the Stage I Injury Report). Finally, recreational fishing was the only use quantified, and it was based on data from the KRE, which accounted for other factors that could affect recreational fishing uses (see Chapter 2 of the Stage I Economic Report).

The Trustees are committed to measuring damages *resulting from* the potentially responsible parties' releases of hazardous substances, which necessarily includes analyses of baseline. Additional information about how baseline is treated in the Stage I assessment is provided throughout both Stage I Assessment Reports.

3.2.3 Injury quantification

One comment suggests that the Trustees must quantify injuries, pursuant to federal regulations at 43 C.F.R. § 11.70(b). However, the Trustees note that the quantification phase of the regulations discusses quantification of services that link injuries to damages, and that 43 C.F.R. § 11.70(b) refers to quantification of "the effects of the discharge or release on the injured natural

resources.” Therefore, the Trustees disagree that quantification refers exclusively or primarily to injuries.

For the Stage I assessment, the Trustees conducted some preliminary quantification of the extent of injuries and the loss of services provided by the injured natural resources to help determine the potential magnitude of injuries that could be further assessed in a Stage II assessment. In addition, the Trustees conducted some preliminary analyses that could be used for restoration scaling. Additional quantification may be necessary in Stage II of the assessment. The Trustees are committed to quantifying damages that result from the potentially responsible parties’ releases of hazardous substances, using appropriate metrics to quantify injuries, services, costs, or values.

3.2.4 Data quality

Another comment suggested that the most recent injury data must be used to ensure high quality, including data generated by the potentially responsible parties. However, the Trustees disagree that recent data are necessarily of higher quality than older data. For the Stage I assessment, the Trustees conducted extensive searches for available data and information relevant to the assessment, and conducted preliminary evaluation of data relevance and quality. In addition, the trustees stopped incorporating new data after mid-2003 to ensure that included data were reviewed for quality before the Stage I reports were reviewed, finalized, and released. However, additional analysis of data relevance and quality may be required for Stage II of the assessment.

3.2.5 Economics

A number of comments address which kinds of economic analyses can be used for the assessment. Some comments were appropriate for Stage I and were considered by the Trustees during the Stage I assessment. Other comments were more appropriate for the Stage II assessment, and they will be considered during that phase, as appropriate. In general, the Trustees agree that approaches favored by the potentially responsible parties could be used in an NRDA for the KRE. The Trustees disagree, however, that these approaches are the only or necessarily the best methods to determine the public’s losses. Additional information regarding the Trustees’ economics approaches are provided in the Stage I reports.

One comment stated that a random utility model should be developed, including analysis of the Atkin (1998) data, instead of attempting to rely on benefits transfer from other studies, particularly studies that included stated preference data. Related comments suggested that stated preference data should not be used at all. The Trustees agree that random utility models and other revealed preference data can be used to estimate damages for the KRE. The Trustees also agree to consider all of the Atkin data, including data from the more recent unpublished study.

However, the Trustees disagree that revealed preference data are inherently superior to stated preference data, that benefits transfers cannot be reliably applied to the KRE, and that a random utility model is necessarily the only or best method to estimate damages. The Trustees are committed to estimate damages using reliable data and methods, including benefits transfer, random utility models, stated preference data, and other methods and data as appropriate.

4. Comments that Present Factual Information

The potentially responsible parties submitted a number of comments regarding factual information presented in the Stage I Assessment Plan, either to correct factual mistakes within the Plan or to provide additional information relevant to the Plan. In conducting the Stage I assessment and preparing the Stage I Assessment Reports, the Trustees have considered and incorporated the comments regarding factual information presented in the Plan. However, there were no changes necessary regarding the factual information presented in the Plan that warranted re-publishing the Plan.

- ▶ One comment stated that the Plan overstates the severity of PCB impacts in the KRE because of selective data presentation. The Trustees disagree that the Plan was misleading because it explicitly stated that only selected data were presented to confirm exposure.
- ▶ A number of other specific comments suggested different interpretations for information presented in the Plan, such as presenting “non-detects” as 0.0 rather than quantification limits, presenting different selections of data, and presenting additional description of data not presented. However, the Trustees disagree that the alternate interpretations were necessary or superior to those in the Plan.
- ▶ A number of comments suggested corrections to data presented in the Plan. The Trustees have reviewed these comments and the original data sources and found that the following two corrections should be made. These corrections do not substantively affect the meaning of the data and, thus, the Trustees will not republish the Plan.
 - Table 4.6: The correct value for the median PCB concentration for earthworms collected from the Lake Allegan Dam floodplain is 0.24 mg/kg, not 0.024 mg/kg.
 - Table 4.9: The correct value for the median PCB concentration for muskrat carcass samples collected from the Former Otsego Impoundment should be 0.39 mg/kg, not 0.46 mg/kg.

References

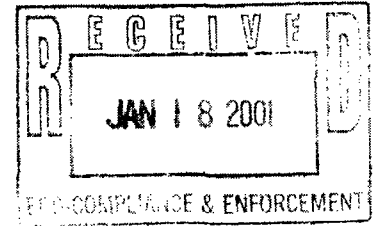
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Appendix — Public Comments on the Plan



Transmitted Via Federal Express

January 15, 2001

Dennis A. Armbruster
Assistant Chief
MDEQ-Surface Water Quality Division
P.O. Box 30273
Lansing, MI 48909-7773

Re: Stage I Assessment Plan, Kalamazoo River Environment Site, Michigan
Project #: 645.24.750 #2

Dear Dennis:

On behalf of the Kalamazoo River Study Group (KRSBG), enclosed are comments on the *Stage I Assessment Plan, Kalamazoo River Environment Site* prepared by Stratus Consulting, Inc. in November 2000. These comments were generated by Triangle Economic Research, Arcadis JSA and Blasland, Bouck & Lee, Inc. Comments are presented with general comments first, which pertain to conceptual issues of the document, followed by specific comments addressing details within each of the sections. Please let us know if you would like us to provide any of the referenced material.

Please call me with questions or comments.

Sincerely,

BLASLAND, BOUCK & LEE, INC.

Mark P. Brown, Ph.D.
Senior Vice President

MPB/msf
Enclosures

KRSG Review Comments for the Stage I Assessment Plan for the Kalamazoo River Environment Site

The Stage I Assessment Plan for the Kalamazoo River Environment Site (the Plan) dated November 2000 has been provided to the Kalamazoo River Study Group (KRSG) for comment. The following comments focus on the Plan's proposed approach to assessing natural resource damages within the Kalamazoo River Environment (KRE).

General Comments

Use of a Screening-Level Approach

The Plan presents a conservative (i.e., protective) screening-level approach to ecological injury assessment and damage determination within the KRE. A screening-level assessment primarily uses existing data to evaluate the potential scope of the injury and damages. Given its reliance on existing data, a screening-level assessment is a cost-effective tool that can serve three purposes, all of which are important in the KRE:

- Provide preliminary information to aid in settlement discussions,
- Assist in framing a full assessment to target areas of major concern, and
- Begin the restoration planning process early using initial information.

Therefore, we agree with the Trustees that taking a screening approach at this stage of the assessment is prudent. Nevertheless, the reliance on existing data results in inherent uncertainties and limitations. For example, to determine the areas where PCB-related injuries have occurred, the Plan proposes comparing existing data to conservative, screening-level threshold concentrations. If all relevant and acceptable data are used, this approach can provide some indication of the likelihood of injury in particular areas of the KRE. However, this screening approach is not a substitute for actual injury determination and quantification within the context of a full Type B natural resource damage assessment (NRDA). Instead, this first phase will indicate which areas, if any, require further investigation as part of a Stage II full assessment.

If the uncertainties and limitations associated with a screening assessment are understood and acknowledged by the PRPs, Trustees, and other interested parties, then the results of the Stage I assessment can be useful as a basis for ongoing settlement discussions. For example, in the past screening assessments have proved instrumental in focusing the assessment on key categories of damages, which has enabled settlement discussions to be more effective. Screening assessments in some cases have helped to target further data collection on the key issues when the existing data are not sufficient to inform a settlement.

This screening-level assessment can also assist in preliminary restoration planning. For this assessment plan, the Trustees' willingness to consider an ecosystem-based approach to restoration is positive. Considering the ecosystem as a whole in restoration planning expands the list of potential restoration opportunities available as offsets to potential PCB-caused ecological injuries. Taking this broad approach also increases the likelihood that the selected restoration measures will succeed. For example, consideration of factors influencing fish reproduction when choosing an area for habitat restoration should lead to a more effective restoration plan. The habitat is more likely to be enhanced in areas where other ecological factors are most suitable. In addition, consideration of such an

approach during the Stage I assessment provides a “jump start” on the restoration planning process and can provide valuable information in the context of any ongoing settlement discussions.

Definition of Baseline

As with all damage assessments, a key aspect is the determination of the baseline level of services for the injured resource. Baseline is defined as the level of services provided by the resource but for the release in question (see USEPA, 2000). According to 43 CFR § 11.71(b)(2) *the injuries determined by trustees will be quantified in terms of changes from “baseline conditions.”* Correctly specifying baseline conditions, therefore, is essential for quantifying both human use and ecological service reductions. Without an accurate picture of baseline, it is impossible to develop an accurate picture of injuries, damages, and restoration.

Despite the crucial nature of baseline determination, the Plan does not include any discussion of the determination of baseline for the KRE. As is often the case with PCB releases, accurately establishing the baseline condition is challenging, with many factors to consider. Thus, the assessment plan must identify a procedure for determining the baseline level of resource services.

For the KRE, there are three primary factors to consider when establishing the baseline level of services. First, it is important to make the distinction between potential injuries that may have resulted from release of PCB and adverse ecological impacts that may have resulted from other unrelated causes. These causes may include non-point source pollution and industrial, urban and agricultural development, which may have adversely impacted and may continue to adversely impact the ecological resources of the KRE. Industrial, agricultural, and urban development have resulted in increased discharges of suspended solids, debris, fertilizers and pesticides to the KRE, all of which are a part of the area’s baseline for this assessment. Additionally, other industries and publicly owned water-treatment plants hold permits to discharge waste water effluent into the river. These permitted discharges have resulted in regular discharges of pollutants to the Kalamazoo River including industrial metals, pesticides and other organic chemicals (see RI/FS documents [BBL, 2000a; 2000b] and the site’s Description of Current Situation report [BBL, 1992]). Separating out the effects of PCB from these other impacts is essential for a scientifically sound assessment.

A second key factor in determining baseline is the contribution of PCB from sources other than KRSRG facilities. Readily available data collected from upstream locations illustrate the contribution of upstream sources of PCB to the baseline conditions of the KRE. For example, based on remedial investigation data (BBL, 2000a; 2000b), consider the following facts:

- 108 of 110 (98%) smallmouth bass (skin-on) and carp (skin-off) fillet samples collected upstream of the PRP facilities (ABSAs 1 and 2) during the KSRG 1993, 1997, and 1999 fish sampling events contained detectable concentrations of PCB.
- 9 of 20 (45%) surface water samples collected between 1985 and 1989 upstream of the PRP facilities contained detectable concentrations of PCB. The maximum upstream detection of 0.14 ug/L was greater than 96% of samples collected downstream of the PRP facilities.
- The maximum detected lipid-adjusted PCB concentration among bird samples (700 mg/kg-lipid) occurred in a Merganser collected upstream of the PRP facilities.
- The maximum detected PCB concentration in turtle samples collected during the 1994 biota investigation occurred in a turtle collected from ABSA 1 (Battle Creek, the reference location).

- For Morrow Lake surface sediments, 13 of 16 (81%) samples collected in 2000 and 22 of 22 (100%) samples collected in 1988 contained detectable concentrations of PCB. When Morrow Lake sediment samples from all-depths are considered, 46 of 78 (59%) samples collected in 2000 and 25 of 32 (78%) of samples collected in 1988 contained detectable concentrations of PCB.

As reported in the RI (BBL, 2000a), the composition of PCB mixtures in the Kalamazoo River demonstrates that, while most of the total mass of PCB in the river sediment has a composition consistent with a paper recycling source, roughly half of the PCB found in Kalamazoo River fish originates from sources other than the pulp and paper industry. These other sources contributed PCB mixtures, in particular Aroclor 1254, that are more bioaccumulative. Thus, the effects of these sources must be considered a part of the baseline condition for the purposes of this assessment.

Finally, there may be other factors that affect the baseline level of services by affecting the demand for those services. For example, industrial development along the river may limit the use services provided by limiting access to the river. Also, more developed sites may do not offer the same aesthetics as more pristine areas, making it less attractive for anglers and other users. The existence of substitute recreation sites will also affect the demand for recreation along the Kalamazoo River. All of these factors are important in determining baseline because the assessment should only address service reductions resulting from PCB releases, not access limitations, decreased aesthetics, or existence of substitutes.

Assessment of Baseline and Recovery Periods Must Consider the Influence of MDNR's Operations their Dams

The Plan and the assessment process should be forthright in addressing the significant baseline issues arising from the Michigan Department of Natural Resources (MDNR) ownership and operations of the Plainwell, Otsego, and Trowbridge Dams and associated floodplains. MDNR's actions have exacerbated the distribution and bioavailability of PCB in the Kalamazoo River. The lowering of the impoundment pools by MDNR and the dismantling of the dams to their sill levels released sediment and PCB downstream. These actions resulted in the conversion of extensive areas of formerly submerged PCB-containing sediments into PCB-containing soils. These actions created erodible bank soils at the edge of the river channel, which are now the major external supplier of PCB to the aquatic ecosystem. This condition remains today, roughly 30 years after MDNR's initial actions.

In the early 1970's terrestrial and wetland habitats began to develop in the extensive areas of PCB-containing soil that are exposed in the former impoundments. Thus, MDNR's actions created the PCB exposure pathways involving transfer of PCB from soils in the former impoundments into terrestrial food webs. Professor Giesy's work at Michigan State University will address the significance of these exposure pathways further.

The role of the past and continuing releases of PCB that result from MDNR's operation of the former impoundments/dams must be factored into the trustee's assessments of baseline conditions and, potentially, resource recoverability. The continued contribution of PCB from MDNR's soil banks has been slowing the rate of decline in fish and sediment PCB levels.

Injury Assessment

The Plan specifies that, in accordance with federal regulations, injury assessment of ecological resources will include both injury determination and injury quantification (p. 5-1). However, the

screening approach adopted by the Plan will be insufficient to determine injury. Instead, it can only document existing evidence of exposure of ecological receptors to PCB, which falls short of injury determination. (The Plan addresses this issue in Section 5.4.5). This assessment will provide a rational basis for either settlement discussions or more detailed and focused studies.

The Plan, as it currently stands, considers an excessively broad range of resources for injury determination, especially for a Stage I assessment. According to 43 CFR § 11.23(e)(2), an initial requirement is that natural resources for which the Trustees can assert trusteeship under CERCLA have been, or are likely to be, adversely affected by the release of hazardous substances. The Plan asserts that, at a minimum, natural resources affected or potentially affected by releases of PCB include: surface water, sediments, groundwater, soils, and biological resources including aquatic biota and terrestrial biota. Although the Plan documents the existence of PCB in these resources, 43 CFR § 11.23(e)(3) requires evidence that the quantity and concentration of the released substances are sufficient to cause injury to natural resources. Section 11.23(e)(4) of CFR 43 also requires that data sufficient to pursue an assessment are readily available or likely to be obtained at a reasonable cost. The Plan fails to meet both of these requirements. Thus, the scope of this screening assessment should be narrowed to include only those resources for which injury can be documented with obtainable data.

Consequently, we suggest that this assessment focus on injury to biological resources (43 C.F.R. Subtitle A Part 11 §11.62 (f)). Site-specific data and studies are available for these resources, making a screening-level injury determination possible. In addition, potential injuries to natural resources resulting from exposure to PCB are most often manifest in upper-trophic level biological resources because of the bioaccumulative nature of PCB in the environment. Although other resources of concern in the KRE, including sediments and surface water, may be injured, they are injured because concentrations of PCB in these resources may cause injury to biological resources. Thus, focusing this Stage I assessment on specific biological resources would be appropriate.

In contrast, we do not expect the assessment of groundwater related injuries to lead to any quantifiable loss. Although PCB have been detected in samples from certain groundwater wells at the site, these wells are not screened in units that are or could be used for potable water supply purposes. As these units would discharge to surface waters, the potential pathway for any PCB in groundwater would be through surface water. And, even using conservative assumptions about the groundwater PCB levels and the groundwater flow, the fraction of PCB transport from groundwater to surface water is trivial. In addition, remedial responses are underway to address the potential for groundwater-related releases of PCB at the site. We expect that a simple desktop assessment of groundwater resources by the trustees will show that further assessment activities related to groundwater would not be cost effective or result in any quantifiable injury.

While the Plan provides an approach for preliminary injury determination, there is no discussion of injury quantification. As defined in the federal regulations, injury quantification is conducted “for use in determining the appropriate amount of compensation” [43 CFR § 11.70(b)], and is therefore a key element in the assessment. Therefore, the Plan and the resulting preliminary injury assessment would benefit from a discussion of how injury to ecological receptors, if determined, will be quantified.

This screening-level quantification of injury is a necessary input to the identification, evaluation and scaling of potential restoration projects that will be developed during the Stage I assessment. To accomplish the restoration planning effectively, we suggest that the Stage I assessment segment the KRE, both spatially and temporally, so that location-specific conditions and stressors over time can be identified and evaluated. This type of approach, even during a Stage I assessment, will help to reduce

the level of uncertainty associated with preliminary results. Moreover, it will ensure that all existing data are utilized in an appropriate manner that considers when and where the data were collected. In addition, this type of approach will help focus initial restoration planning efforts on those areas where potential restoration offsets will be most effective and most needed.

Economic Damage Estimation Methodologies

The Plan proposes to focus the economic evaluation of damages on recreational fishing, an approach which is consistent with the specifics of the KRE. Recreational fishing is the primary human-use service for which there is a clear link between the PCB-related injury and potential service reductions. This link comes from the PCB-related fish consumption advisories which limit the consumption of fish from the Kalamazoo River. Furthermore, the data on fishing is more likely to be suitable for conducting a Stage I assessment than for any other human use. Specifically, there are more studies available for lost fishing service values than other lost services. A review of recent natural resource damage assessments (State of Montana 1995; Desvousges and Waters 1995; Desvousges, MacNair and Smith 2000) also shows that fishing is often the only human use for which the potential service losses can be estimated at a reasonable cost.

The potential link between PCB-related injuries and other human uses is not as clear. In other words, other human uses do not manifest a clearly defined injury. For services such as bird watching or nature viewing, it is unlikely that even quantifiable injuries in some bird species would be sufficient to result in a perceptible change in the animal populations. Thus, the measurement of losses from such uses is highly problematic. Other attempts to measure these types of losses, as in the Fox River Assessment, have been unsuccessful. (Desvousges, MacNair, and Smith 2000.)

The Plan proposes to use a benefits-transfer approach, using existing data whenever possible, to evaluate economic losses. We agree with this approach because it is a cost-effective way to develop preliminary estimates, especially when high-quality existing studies are available, such as the Atkin data. However, the reliability of estimates from a benefits-transfer depends both on the soundness of the studies used in the transfer and the similarity of the sites involved in the transfer process (see WRR March 1992, Desvousges, Johnson and Banzhaf, 1998, US EPA 2000, Freeman 1994). The Plan provides little or no indication that steps to ensure soundness and similarity are being considered nor does it indicate how soundness and similarity would be accomplished.

A benefits-transfer approach may be challenging because of the specific characteristics of the KRE. For example, the estimation of the number of impaired days for the KRE requires estimates of changes in demand resulting from changes in the quality of the resource. There are few studies in the existing literature that evaluate these types of quality changes. Moreover, finding studies of sufficient quality may prove difficult. The Plan indicates that there is an extensive body of literature on fish consumption advisories, while the number of reliable studies that produce estimates of value based on actual behavior, not just stated preferences, is substantially smaller. The trustees need to perform a careful evaluation of the quality of any studies that are being considered for benefits transfer.

Instead of simply transferring existing values from the literature to the KRE, the trustees should consider developing a simplified random utility model (RUM) for the Stage I assessment. The RUM is widely used in recreation modeling and is included as an accepted methodology both in 43 CFR Part 11 and in the Environmental Protection Agency's new guidance for conducting regulatory impact analyses. This type of model recognizes that each site is a combination of various characteristics, and that these characteristics may appeal differently to various users of the site.

This approach uses the actual behavior of recreational users in their choices of recreation sites to model the relative importance of these site characteristics. A RUM can estimate the importance of fish consumption advisories, holding the influence of other characteristics, such as access and amenities constant. As a result, a RUM would be able to address some of the baseline issues with the KRE. Specifically, a RUM might include variables to hold constant the effect of shoreline industrial development. Then, the “but for PCB” condition would not include the effect of diminished aesthetics from shoreline development in the estimates. In addition, these models can estimate the value of site improvements, making them useful for evaluation potential restoration actions.

The Atkin data (Atkin 1998) may provide an opportunity to estimate such a model. Because the data were collected primarily for reasons other than assessing angling use, some assumptions will be needed to construct the RUM. Nonetheless, the sensitivity of such assumptions can be evaluated as part of a comprehensive sensitivity analysis in the damage assessment. Other Stage I assessments have used simplified forms of RUMs to help estimate the range of potential fishing losses and evaluate restoration gains.

Developing a RUM with existing data is likely to yield more reliable information on fishing than the simple benefits transfer proposed in the Plan. The Plan mentions the Michigan State University (MSU) model and its possible use in a damage assessment. Although the PRPs have requested copies of the data and model for evaluation for more than one year, no information has been provided. Based on the limited information available, however, it does not appear that the model contains information on fish consumption advisory restrictions. Nor does it appear that the data are specific enough to estimate the use of the Kalamazoo River but for the presence of fish consumption advisories – the primary objective of the damage assessment for fishing services. The trustees’ hopes for deriving potential losses at the Kalamazoo River from an aggregate model (such as the MSU effort) underscore the difficulty associated with applying a simple benefits transfer approach to this problem. Even given a high-quality study that encompasses a geographically correct area, such comparisons are problematic because of differences in conceptual foundations, the scope of the efforts and the nature of the data employed.

The Plan proposed to evaluate the uniqueness of the KRE. The uniqueness of a site is essentially an empirical question. A unique site is one that has no good substitutes, and in reality, there are few truly unique recreation sites. Even a cursory review of the KRE indicates that the number of substitute resources for the KRE is quite large. According to the USGS National Mapping Information System, there are 82 lakes and ponds in Kalamazoo County and 92 lakes and ponds in Allegan County. Because there are many substitute fishing sites for the KRE, the accuracy of the Plan’s benefits transfer approach to estimating recreational fishing losses depends on the similarity and availability of similar resources in transfer studies. Recognizing the importance of this factor, the Plan intends to employ “studies in and around the KRE and from studies investigating fish consumption advisories (FCAs).” However, the existence of such studies is doubtful.

To augment the benefits transfer study, the Plan states that interviews may be conducted to obtain insights into public opinions about restoration options. However, the Plan provides no details on whose opinions might be elicited, or when that might be done and how. Any survey must be designed carefully to ensure accurate results. For example, the wording of all questions must be neutral to avoid biasing the stated opinions. The sample must be drawn carefully so that it is representative of the target population. The sample must also be large enough to allow for statistically meaningful results. The lack of specificity in the plan raises concerns that the public elicitation process will not be designed properly.

The Plan indicates that limited, new site-specific data collection efforts will be used to supplement the existing information to assess compensable values for interim losses. As with the opinion survey, the Plan provides no details on the site-specific data that the trustees plan to collect. It also provides no details on the exact nature of the compensable values that will be assessed. We are particularly concerned that the trustees will collect hypothetical data, such as contingent valuation data, to supplement existing data. Correctly implementing a hypothetical survey is both a difficult and expensive task. Moreover, research on such surveys demonstrates that respondents often overstate their willingness-to-pay for site improvements when compared with actual behavior (see Triangle Economic Research 2000). Given the availability actual behavior data from the Atkin study, the expense required to generate a hypothetical survey, and the controversy any such data are likely to generate, are unnecessary.

The Plan's proposal to evaluate restoration alternatives is very positive, but the discussion of scaling is unnecessarily vague. Scaling issues can be grouped into human use and ecological services. Human use services are best scaled using some type of behavior-based approach, such as a RUM. There is a substantial amount of information available to conduct such a scaling for recreational fishing. Ecological services can be addressed using Habitat Equivalency Analysis. Concerns arise when attempting to trade off human use service losses for ecological restoration alternatives. The attempts to make these kinds of trade offs, such as the Total Value Equivalency performed on the Fox River by the federal trustees, is highly suspect. The TVE study requires respondents to attempt tradeoffs for natural resource services that are unfamiliar. Moreover, there is no opportunity to calibrate these tradeoffs with data on actual tradeoffs because no such trade offs take place in the conventional market settings. Alternatively, the approach included in the Wisconsin Department of Natural Resources Assessment Plan (WDNR, 1999) provides a much more straightforward approach to scaling that is likely to produce more reliable estimates of potential losses and gains. This approach uses Habitat Equivalency Analysis to scale ecological services and RUM models to scale human use services. In this way, valid techniques are matched with the appropriate type of natural resource service.

Specific Comments

Section 1

1. *Section 1.3.* "Conclusions," preliminary or otherwise, regarding types and magnitude of injury and damages cannot be made based on the conservative screening-level criteria discussed in the Plan. We suggest changing this language to read "preliminary indication."
2. *Section 1.3.* The Plan should discuss what types of situations would warrant a Stage II Assessment.

Section 2

3. *Section 2.3.* This section states that the RI/FS and the site remedy are distinct from the NRDA being conducted, and that the more extensive the remedy the less extensive the NRDA. The potential collateral damages resulting from a selected remedy are not discussed in this section, as they are later in section 6.4. The document should make clear that all factors need to be considered when choosing a remedy, and the RI/FS and NRDA processes should work together to implement a solution that has the most benefit for the ecosystem and its overall beneficial use.

Section 4

4. A key aspect of a screening assessment is the use of existing data, rather than undertaking an extensive data collection. To make a screening assessment as accurate as possible, it is imperative that the most recent and the highest quality data be used. Therefore, the data from an

on-going study by Dr. John Giesy and the Michigan State University Aquatic Toxicology Laboratory (MSU-ATL) should be instrumental in determining potential ecological injuries in the KRE. The MSU-ATL has collected co-located soil and terrestrial plant, terrestrial invertebrate, earthworm, and small mammal tissue data, as well as co-located sediment and aquatic emergent insect, benthic invertebrate, mobile benthic invertebrate, and aquatic plant data from the KRE. These data are expected to be available for review in the summer of 2001. In addition, the MSU-ATL is conducting a habitat suitability index for mink, a tree swallow nest box study, and a natural history study of bald eagles and great horned owls (i.e., dietary composition, foraging range, etc.). While interim reports for the mink, tree swallow, and raptor studies will be provided at various points throughout the studies, the final reports are not expected until 2002. These data will reduce much of the uncertainty that is currently associated with the food chain analysis, thus allowing for more informed and appropriate decisions regarding potential injury to ecological resources in the KRE.

5. The Plan's discussion overstates the severity of PCB impacts in the Kalamazoo River environment. This misstatement results from selective data presentation. On page 4-1, the plan states that the discussion "provides examples" of information sufficient to confirm exposure of natural resources to PCB, qualifying that statement by saying that the discussion "is not a complete review of existing information." In effect, the Plan presents only the data that confirm historical PCB exposure within the KRE. Thus, the Plan should clearly state that the historical data presented do not represent the current condition within the KRE and that confounding results exist but are not presented.
6. *Section 4.4.2.* This section refers to PCB concentrations detected in bird eggs collected from the KRE area. The area from which these eggs were collected should be checked for spatial relevance to the KRE.
7. *Section 4.4.2, 1st paragraph.* "Concentrations (normalized for lipid content of the tissue) up to 700 mg/kg-lipid were measured in these birds." While this is true, only one bird sample had a calculated lipid-adjusted PCB concentration approaching 700 mg/kg-lipid. Excluding this result, the remainder of the samples ranged from not detected to 68 mg/kg-lipid. Also, the sample with the 700 mg/kg-lipid was collected upstream of the PRP facilities, which is relevant to the definition of baseline.
8. *Table 4.2* The Plan states that this table presents a summary of the historical PCB data for fish fillet samples collected downstream of the PRP facilities. However, after review of the referenced data, it appears that data for fish samples collected from Morrow Lake and upstream as far as Battle Creek were included in the table. These sites are upstream of KRSG's facilities. In addition, instead of providing the range of observed PCB concentrations and the calculated median value (as done in other summary tables), the calculated mean is presented. It is not clear why the method of presentation was changed in this case.
9. *Table 4.3.* Results presented for the blue-winged teal (Otsego City Dam Impoundment), the Canada goose (Lake Allegan), the Wood duck (Saugatuck), and two Mallard samples collected near Saugatuck (presented as having lipid-adjusted PCB concentrations of 9.3 and 7.1 mg/kg-lipid, respectively) should be shown as not-detected. The lipid-adjusted PCB concentration currently reported for these samples was calculated using the quantitation limit. If not reported as having nondetectable PCB, these samples should at least be noted in the table for clarification.

10. *Table 4.6.* The median PCB concentration presented for the earthworm samples collected from the Lake Allegan Dam is 0.24 mg/kg, not 0.024 mg/kg.
11. *Section 4.5. Recovery Period.* The Plan conveys the false impression that natural recovery is not significant because PCB do not rapidly biodegrade. This should be modified in light of the findings presented in the draft Remedial Investigation (RI) report for the Kalamazoo River. There are 45 lines of text essentially explaining that PCB are not very biodegradable and barely three lines acknowledging that physical processes “are typically the primary loss mechanism for PCB in riverine systems”. The substantial ongoing recovery of sediment, surface water, and fish as manifested by declines in fish, water, and surface sediment PCB concentrations is well documented in the draft RI Report. Although anaerobic dechlorination of PCB is occurring in sediments, the predominant processes of actual alteration have been physical rather than biological.
12. *Section 4.5 Natural Recovery (p. 4-19).* The Plan states, “the KRE natural resources will remain exposed to PCB as long as environmental media ... remain contaminated and continue to operate as exposure pathways.” The Plan considers the recovery period to be the longest time required to return the injured resources to baseline. The Plan then discusses the persistence of PCB and states that the “natural recovery period is expected to be very long, at least on the order of many decades.” It should be clearly noted that services from biological functions (ecological receptors) may or may not take this long to recover, depending on the degree of injury, if any, that currently exists. Evidence of exposure of ecological receptors to PCB is not sufficient to determine injury (the Plan addresses this in Section 5.4.5). The Stage I assessment should attempt to determine and quantify injury to ecological receptors both spatially and temporally. The Plan would be strengthened if language were added to specify this course of action.
13. *Table 4.9.* The calculated median value for muskrat carcass samples collected from the Former Otsego Impoundment should be 0.36 mg/kg, not 0.46 mg/kg. The range of reported PCB concentrations in muskrat carcass samples from the Former Trowbridge Impoundment should be not-detected to 8.4 mg/kg (83% detected), not 0.28 to 8.4 mg/kg (100% detected). The range of PCB concentrations in muskrat liver samples from the Former Trowbridge Impoundment should be 0.25 to 3.8 mg/kg (not 0.23 to 3.8 mg/kg).
14. *Figure 4-4.* The cited maximum concentration of 369 mg/kg is from a sample collected in 1972. Pre-remediation sampling data presented in the RI report show no surficial sediment PCB concentration greater than 2.0 mg/kg in Portage Creek in the Bryant Mill Pond. This area has been remediated.
15. *Figure 4-4.* The DCS (BBL, 1992) is referenced as a source of surficial sediment PCB data collected from the Former Bryant Mill Pond. The DCS provides a summary of sediment and floodplain soil PCB data collected between 1972 and 1988. In 1988 alone, 63 surficial samples were collected from the Former Bryant Mill Pond. Figure 4-4, however, shows only a total of 36 samples at this location. Therefore, it is not clear which subset of the data presented within the DCS was used to generate this figure, and how or why that subset was selected.
16. *Figure 4.5.* The sediment box plots presented in Figure 4-5 depict PCB concentrations in sediment samples collected from the Kalamazoo River between 1976 and 1993. However, over 2500 sediment samples were analyzed in 1997 and 2000 during the RI/FS investigation. It is apparent that these data (or a majority of the data) are omitted from Figure 4-5.

Section 5

17. *Section 5.4.* This section discusses assessing potential injury to resources in Lake Michigan “depending on the results of the Stage I pathway evaluation.” Lake Michigan has received PCB from numerous sources. An assessment of injury specifically attributable to the KRE would be fraught with uncertainty.
18. *Section 5.4.2.* This discussion of sediment injury to surface water resources (p. 5-12) should be better linked to the previous surface water discussion. If actual surface water measurements are available, there would be no need to model surface water concentrations from sediment concentrations to determine potential injury.
19. *Section 5.4.2.* This section discusses injury assessment for sediment. The Plan states that one of the definitions for injury to sediments is “concentrations of hazardous substances sufficient to cause injury to biological or surface water resources that are exposed to sediments [43 CFR § 11.62(b)(1)(v); 11.62(e)(11)].” The Plan proposes use of consensus-based sediment effects concentrations (SECs) in order to assess sediment injury to benthic macroinvertebrates. We are concerned with the use of SECs, which are not promulgated standards. In fact, there are no state or federal criteria for PCB in sediment. No causality has been established between these consensus values and actual toxicity of specific compounds. Trustees in other NRDA have approached this problem by relying on “the PCB pathway link from bed sediments to surface water and biological resources [to determine] if these resources are injured, bed sediments are injured” (Stratus 1999). We suggest that a similar approach be taken for the KRE.
20. *Section 5.4.2.* This section addresses sediment injury to higher trophic level organisms. We have voiced technical concerns with the methodologies used by CDM to determine sediment PCB threshold concentrations in our comments on the Ecological Risk Assessment for the KRE. Likewise, we have technical concerns regarding the WDNR values. It should be acknowledged that these methods for determining sediment threshold concentrations are extremely conservative and have limited application to site-specific injury determination. Furthermore, the Plan indicates that injuries to wildlife will be assessed directly, negating the need and expense, and substantially reducing the uncertainty of modeling this injury.
21. *Section 5.4.4.* The Plan states that, “a site-specific PCB soil uptake and bioaccumulation model was developed for the KRE as a part of the ecological risk assessment” (CDM 1999). The bioaccumulation factor (BAF) derived for soil to plants was literature derived and highly conservative. It should be noted that the MSU-ATL has collected co-located soil and plant data from the KRE. Thus, a site-specific BAF is available and should be used. In addition, we have previously documented concerns regarding the safe soil PCB concentrations calculated in the CDM ERA (presented in Table 5.4). We would like to reiterate our concerns with the use of these values to make any type of injury determination, particularly the value for the great horned owl. We appreciate the acknowledgement that the USDOJ-recommended value of 1 mg/kg in soil for the protection of wildlife does not necessarily constitute injury. We would hope that this and all modeled values (Table 5.4) that lack the appropriate site-specific inputs would only be used in a very cursory way, and would not be used in actual injury determination.

Section 6

22. *Section 6.1.* We agree with the ecosystem-based restoration approach and believe that it will have the most overall benefit for the system. This approach would allow for consideration of the overall, long-term system impacts (positive and negative) of any restorative actions.

23. *Section 6.2.* The plan mentions that NRDA actions may include extraction or containment of contaminated sediment/soil and other types of restoration actions such as habitat restoration. However, there is no discussion of how the trustees intend to address the relationship between CERCLA remediation and NRDA. While the RI/FS process and NRDA process address different aspects of the PCB contamination problem, the overall objectives of both processes are similar. The latter is intended to address residual injuries to natural resources and services that may remain after remediation. However, the remedy chosen in the RI/FS process will be protective of present or future resources to the extent practicable with currently available technology. If remediation has reduced risks to human health and the environment, then it is unclear how additional extraction or containment would be appropriate restoration actions. We suggest that the NRDA process focus on the ecosystem-based approach for expedited system recovery.
24. *Section 6.2.* In this discussion, sediment/soil restoration seems to be akin to primary restoration actions in the NOAA regulations. Is that what the trustees mean or do they have some other concept in mind? If so, the line between primary restoration and remediation is very fuzzy and requires careful consideration on the part of the trustees in order to avoid confusing the two processes.
25. *Section 6.2.3.* The trustees need to consider the broader question of effectiveness when evaluating whether removal or containment would reduce injuries and return conditions to baseline. For example, any injuries that remain are likely to be modest, given the residual nature of NRDA. In addition, removal and containment actions are considerably more expensive than most other types of restoration actions. Thus, it is unlikely that removal and containment actions would meet the cost-effective criterion that is part of 43 CFR Part 11. The trustees should focus their attention on restoration actions that are likely to have the most significant beneficial effects on the Kalamazoo River system and are most cost-effective.
26. *Section 6.1.* The trustees have provided a useful list of examples of ecosystem restoration that have proven to be effective at other sites. However, the classification of improvements in the public's ability to use or enjoy resources as an ecosystem action is potentially confusing. It is more effective to classify services into human use and ecological services, and then simply to identify possible restoration actions that might be undertaken to improve either or both types of services. Such a classification is likely to help reduce the potential for double-counting when measuring the potential losses from PCB in the damage assessment.
27. *Section 6.2.2.* The trustees fail to provide any potential linkage between PCB and the ability of floodplain soils, floodplain vegetation, and river geomorphology to stabilize streambanks or dissipate erosive stream energy, or any of the other services that are listed. While an ecosystem based approach may be useful, a Stage I assessment needs to focus on the services that are most likely to be affected by PCB, and how such services could be restored in the most cost-effective manner.
28. *Section 6.2.2.* The integration of NRDA actions with long-term ecosystem planning is a sound strategy. However, it also is important to integrate restoration of human uses into the appropriate plans that many communities, as well as the State, have developed for the region.
29. *Section 6.2.3.* In the discussion of restoration planning activities, the Plan states that limited on-site interviews may be conducted. While public input to the process is important, we feel that interviews at this point in the NRDA process would be premature because it will not be possible to provide the public with accurate information concerning potential ecological injuries and the spatial and temporal extent of any such injuries. We recommend conducting interviews after the Stage I assessment is complete.

30. *Section 6.2.3.* Figure 6.1 does not indicate how interim service losses will be factored into the scaling process. For the Fox River/Green Bay area, the Wisconsin Department of Natural Resources assessment plan indicates how past and future interim service losses can be factored into a comprehensive assessment of potential losses. This process can be used for both human use and ecological services (see WDNR 1999).
31. *Section 6.3.* The economic evaluation of damages follows the determination and quantification of injuries. The Plan proposes employing a variety of economic tools including benefits transfer, limited site-specific data collection, and interviews with local residents. However, the Plan fails to indicate how these transfers will be performed or how existing data will be validated. In addition, the plan does not address how human use services will be integrated into the overall Stage I assessment relative to ecological services.
32. *Section 6.3.* Dam removal restrictions are listed as a potential damage (p.6-7). What is the basis for any such damages under the NRDA process and where are such damages discussed in the 43 CFR Part 11 regulations?
33. *Section 6.3.* What is the basis for suggesting that wildlife viewing has been affected by the release of PCB? What basis is there to conclude that wildlife populations have been affected by PCB and that such effects would be noticeable to recreators (p.6-7)? It is highly unlikely that wildlife viewing would be affected because of PCB and the cost of measuring any such reductions would likely exceed the potential damages.
34. *Section 6.3.* The Plan mentions that the Atkin data provided by the PRPs will be evaluated for its strengths, weaknesses, applicability, and conclusions (p.6-8). Such a process should not be unique to the Atkin data, but should apply to any data that the trustees intend to use in the assessment. For example, the possible use of the recreational fishing data or values from the federal trustees' Fox River study raises significant concerns because of the lack of reliability in the data and the results (see attached comments).
35. *Section 6.3.* The Plan indicates that the trustees intend to conduct limited interviews with local residents to collect various types of information about recreational uses in the assessment area (p.6-9). However, no specifics are provided on who will be interviewed, the basis for their selection, or the process that will be used to develop the instruments used to collect the information. Qualitative information can be useful only when it is carefully collected with sufficient scrutiny to ensure that it provides an unbiased insight into recreational uses. It is very easy for biased information to be collected without a rigorous plan (see comments on the Fox about the nature of bias in the federal trustees methods used in the TVE study). Additionally, the plan gives no indication of the relative weight that will be provided to the qualitative information compared to the quantitative information, such as the Atkin data.
36. As stated in Comment # 3, injury to resources in the KRE may include collateral injury that results from implementation of the remedy chosen in the RI/FS process. As such, the long-term impacts to the entire system need to be considered in both the RI/FS and NRDA processes. The requirements of each process need to be balanced with what will restore the system in the most beneficial and cost-effective manner.

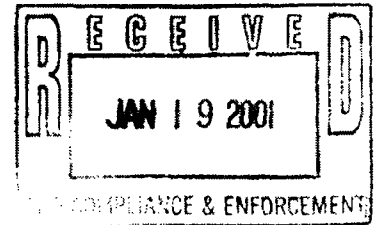
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LAKE MICHIGAN FEDERATION

January 16, 2001



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Dear Ms. Pulley:

Please accept the following comments submitted by the Lake Michigan Federation for the Stage I Assessment Plan for the Kalamazoo River Environment Site. The Lake Michigan Federation, with offices in Chicago and Muskegon, works to restore fish and wildlife habitat, conserve land and water and eliminate toxics in the watershed of the largest lake within the United States. We achieve this through education, research, law, science, economics and strategic partnerships.

First, we commend the Plan's recognition of the importance of conducting an ecosystem-based approach toward evaluating loss. The Plan's recognition is significant that although PRPs may not be liable under CERCLA for more indirect effects of PCB contamination, actions may be required under the NRDA process to restore services either lost or impaired as a direct result of the release of the PCBs, for which the PRPs are liable. The Federation hopes inclusion of this statement in the Plan is an indication that consideration of this additional liability for damages will be included as a component of any settlement discussions with PRPs.

The Federation acknowledges that the stated purpose of the State I Assessment Plan is intended to be, "preliminary, relatively rapid, based primarily an existing data, and highly cost-effective", however some areas of the Assessment require a further level of detail which should be included in a Stage II assessment.

The Plan states, under Part 5, "Injury Assessment", that an injury assessment for Lake Michigan *may* be conducted, depending upon the results of the Stage I pathway evaluation. The Federation strongly urges that a further discussion of the results of this pathway evaluation and the underlying decision on whether to undertake an injury assessment to Lake Michigan should be included in a Stage II evaluation. Lake Michigan is a significant natural resource that provides enormous recreational and ecological value to the citizens of Michigan and throughout the Midwest. Any potential impact to it by PCBs warrants further discussion.

Similarly, in Section 6 of the Plan, "Damage Determination", the plan discusses the interim loss compensable value determination and states that other losses, in addition to recreational fishing, such as aesthetics and land use values, may be considered (p. 6-2). Because of the important natural resource value of the Kalamazoo River (e.g. designation of parts as a Wild-Scenic River by MDNR), measuring the loss of use and enjoyment from degraded aesthetics and reduced property values should receive further treatment.

Also in Section 6.2.3, "restoration planning activities", the Federation would like to see, in a Stage II Assessment, a more detailed description of the criteria that will be used to evaluate the list of restoration projects. For instance, the text states that "trustee agency priorities and mandates" will be included, but fails to mention what shape or form these might take. Without any further elaboration it is hard to comment on such a critical piece of the Plan. Indeed, Section 6, perhaps the most important section of the Plan, is extremely general and vague.

Thank you for the opportunity to comment. Should you have any additional questions or seek any additional information please do not hesitate to contact me at 312-939-0838 or losullivan@lakemichigan.org.

Sincerely,

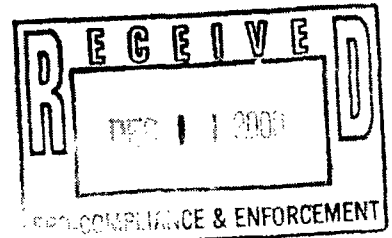
A handwritten signature in black ink, reading "Laurel O'Sullivan". The signature is fluid and cursive, with the first name "Laurel" being more prominent and the last name "O'Sullivan" following in a similar style.

Laurel O'Sullivan
Staff Counsel and Toxics Coordinator

Dec. 6, 2000

To: Anne Pulley, Lisa Williams,

Subject: Natural Resource Damage Assessment for the Kalamazoo River.



The Rabbit River is the largest tributary of the Kalamazoo River. The headwaters are located in eastern Allegan County and western Barry County. Tributaries of the Rabbit drain portions of Kent and Ottawa counties. The Rabbit River watershed totals about 150,000 acres with agriculture the main industry present in the watershed. The topography is mainly rolling hills with a number of small cities and villages in the watershed. There is a lot of residential development taking place in the watershed at this time.

The Rabbit River has been and is being devastated by non-point source pollution. Numerous species of fish have disappeared from the Rabbit River or suffered drastic population declines because of this non-point source pollution. It is safe to say that all species of fish that require gravel riffles and gravel runs for spawning activity have suffered population declines. Small mouth bass, a great sporting fish, are completely gone from the Rabbit River. 30 years ago it was not hard to catches limits of small mouth bass. Now it is extremely rare to catch a single small mouth bass. Suckers, creek chubs and shiners are also down drastically in numbers. These species provide forage for northern pike. Ten years ago the Rabbit was a premier northern pike fishery. Today that fishery is rapidly disappearing. Fresh water clams or mussels have disappeared from the Rabbit River. Muskrats are rarely seen along the Rabbit, however there does seem to be a resident population of mink along the Rabbit River and its tributaries. I feel most of these factors can be attributed to increased sedimentation and the vast amount of silt that is carried in the waters of the Rabbit River.

Some water quality improvement efforts are taking place in the watershed. There is a 319 Surface Water Quality grant in the study phase in the Upper Rabbit River. There is number of other federal and state programs in place to cost share certain practices and projects that will reduce non-point source pollution. One very significant project that has been implemented is the involvement of several high schools in the watershed to accomplish semi-annual insect studies in the Rabbit River and its tributaries. These schools have committed to doing these insect studies for at least the next three years. This sort of local involvement will help increase awareness of water quality issues in the watershed.

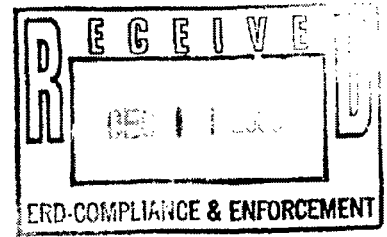
Very little factual data exists pertaining to the Rabbit River but vast amounts of tribal knowledge can be gathered by interviewing residents of the watershed. I would like to see a complete fish sampling inventory accomplished. A complete study of macro-invertebrates in the watershed would give a good indication of water quality. Water temperature studies available from the Michigan Department of Natural Resources indicate the Rabbit River could be designated a cold water stream throughout the entire length of the river. What an unusual occurrence to have a stream as large as the Rabbit, coursing through a heavily populated and intensively farmed area, still cold enough to be designated a cold water stream. The Rabbit River is a river needing protection and improvements in water quality. It could be an engine of economic opportunity in Allegan County if it is restored to pristine conditions of the past.

I request consideration of data gathering efforts, water quality improvements and other applicable projects for the Rabbit River Watershed be considered as part of the Natural Resource Damage Assessment program.


Robert G Beck

Box 181, 432 N Maple Street
Hopkins, Mi. 49328

616-793-7393 or Email to master4@wmis.net



Dec. 6, 2000

To:
Anne Pulley,
Lisa Williams

Subject:
Natural Resource Damage Assessment for the Kalamazoo River Watershed,

The fish contamination advisories that have been in effect for the Kalamazoo River since the mid 1970s have severely impacted the public's use of the river. An example of how the advisories effect the public involves northern pike. The Kalamazoo River was once one of the premiere northern pike fisheries in the State of Michigan. My family spent many enjoyable days catching northern pike from the Kalamazoo and enjoyed many meals of deep-fried northern pike. We quit fishing and consuming northern pike from the Kalamazoo before the fish consumption advisories took effect because the fish smelled bad and tasted bad. The Michigan Department of Natural Resources netted northern pike from the Kalamazoo as part of their annual egg taking operations until about 1990. About that time it was determined that the eggs taken from Kalamazoo River pike did not hatch well and the egg taking operation was shifted to another local lake. There are some northern pike in the Kalamazoo River but fish consumption advisories suggest very limited consumption of these sporting fish. The loss of food from the northern pike, loss of a sporting fish from creel counts of fishermen and loss of recreational opportunity should be some of the factors considered as part of the NRDA process.


Robert G. Beck

Box 181
Hopkins, Mi. 49328

LISA Williams

517-~~373-2637~~

351-1443

Anne Pulley

517-~~373-2637~~

373-2637



Kalamazoo River
Protection Association

(616) 686-7822 / 857-1791
krpa@accn.org

Environmental activism since 1975
Protecting the Kalamazoo River Watershed and the Great Lakes

P.O. Box 408
325 Hubbard Street
Allegan, MI 49010

January 15, 2001

115

Anne Pulley
Michigan Department of Environmental Quality
ERD-Knappe Centre
P.O. Box 30426
Lansing, Michigan 48909-7926

Lisa L. Williams
U. S. Fish and Wildlife Service
2651 Coolidge Road
East Lansing, Michigan 48823

RE: NRDA comments on the Kalamazoo River Environmental Site

Dear Ms. Pulley and Williams,

I am writing to you today requesting that you include the following comments on behalf of the Kalamazoo River Protection Association (KRPA) as part of the public record relating to the Natural Resources Damage Assessment Plan for the Kalamazoo River Site. The KRPA with approximately 200 dues paying members has over two decades of involvement with various agencies and the public with our major goal to bring about the restoration and cleanup of the PCB problems of our river. Our long standing history of environmental stewardship at the site has provided us with hundreds of examples of inaction and delays by the Liable Parties composed of Georgia Pacific Corp. Fort James Corp., Allied Paper, Inc., /H M Holdings, Inc. and Plainwell Paper, Inc./Plainwell, Inc. Further, since being the lead agency, the MDEQ has been unable and unwilling to provide the environmental enforcement under CERCLA and other statutes, rules, and regulations to assure that meaningful progress towards an effective river cleanup will be made.

We are pleased that the MDEQ, US Fish and Wildlife Service and other potential trustees are moving forward timely with the Stage I Assessment Plan (AP) for the Allied Paper, Inc./Portage Creek/Kalamazoo River listed a national superfund site under CERCLA. Because of the complexity of the site and the amount of data to be reviewed, sufficient time and resources should be set aside so that a meaningful and complete AP can be completed timely. As you know, the draft Phase I Remedial Investigation/Feasibility Study (RI/FS) currently out for public comments needs to be reviewed with a critical eye as the polluters at the site have delayed, with the assistance from the MDEQ, the completion of a meaningful RI/FS. I will be forwarding comments

later to the trustees as our review is completed. However, our preliminary review clearly indicates the need for the MDEQ to step in and immediately complete the RI/FS pursuant to section 30 part D of the Administrative Order of Consent signed by the parties in 1990 regarding Procedures for Review, Revision, and Approval of Deliverables. The MDEQ must make a finding of Disapproval with MDEQ undertaking the completion of the RI/FS for Phase I and II of the river and other uncompleted documents.

2/5

The RI/FS submitted by the polluters provides further evidence of the polluter's recalcitrant behavior to stop the cleanup. The RI/FS is woefully inadequate, self-serving, incomplete, technically inaccurate, and designed to delay and avoid the cleanup process far into the future, if not forever. The polluters failed to come close to being in compliance with the Administrative Order of Consent, CERCLA, the NCP and EPA guidance documents for preparing the RI/FS. The liable parties were fully informed about the requirements for the RI/FS and intentionally ignored the MDEQ's mandates.

The preferred remedy proposed by the PRP's would leave the river from Lake Allegan to Plainwell as a permanent toxic waste dump, a totally unacceptable solution. As a result, substantial NRDA dollars will be necessary to first restore the river consistent with the ecological risk assessment to and to provide sufficient damages to bring about the much needed fishery and recreational improvements to our river. Of paramount importance is the cleanup/removal of all the PCB contaminated waste from the river and the assessment of damages via the AP for past, ongoing and future damages.

First, I would like to address the obvious need to begin the damages review by including damages from the release of PCBs in the early 1950's that adversely impacted on wildlife in the River as well as adverse impacts on Lake Michigan wildlife including sports and commercial fisheries. To begin with damage assessments in the late 1960's or early 1970's will not provide adequate damage totals. For example, fish tested in 1971 show elevated levels of PCBs as would earlier test had they been taken in the late 1950's and etc. . . . Impacts on eagles and other wildlife would have been more dramatic than the reproductive failures documented in the last decade or so as PCB levels in fish would have been much higher in the 1960's than those found in fish after the early 1980s, several years after point sources of PCBs were eliminated by laws passed by the federal and state government in 1976 and 1978.

Second, future damages should look as far into the future as possible to assure that a true damage assessment is made. The use of present value dollar assessments should be a mandate for the AP. It is unlikely, under the ideal cleanup that all PCBs will be removed. Levels of PCBs are likely to remain below the .012 parts per million (ppm) and .7 ppm in floodplain sediments (KRPA cleanup standard recommendations) that will continue to have adverse impacts on wildlife and need to be assessed. The data presented by the polluters for the lower Kalamazoo and other areas of the river distorts

the extend of the contamination and include averages, of which 90 percent or more were samples from the mainstream and not PCB deposition zones. Fish and sediment data presented by the Liable Parties should be scrutinized closely to put the data in the proper context. Further, preliminary results for the Ottawa Marsh and other areas downstream showed serious levels of PCBs that require remediation first and dollar assessments as well.

3/5

As you know, the Phase II (RI/FS) from Lake Allegan Downstream has not been started in that the workplan for sampling is still not complete. It is likely that if the polluters at this site are allowed to complete that document that it may take another decade before a meaningful RI/FS is completed. I am aware that CERCLA provides the trustees with the legal authority to assess and recover from the companies that caused the pollution, the costs/studies needed to complete the necessary documentation for the NRDA. Accordingly, I urge you to complete the studies needed for the lower Kalamazoo River independently, without the Liable Parties Participation, other than cost recovery actions.

It is in the public interest for the Trustees to extend the public comment period to provide citizens with opportunities to complete the reviews of the Phase I RI/FS. As I understand it, the release of the Stage I AP was scheduled to be after the public comment period for the RI/FS expired. Since, the polluters at the site caused the delay, it is most inappropriate to stick to the original comment period conclusion of January 16, 2001. Certainly, the comments on the RI/FS by the KRPA and others should be included in your review and consideration of the AP. We will forward our comments upon completion of our review and expect that they will be considered fully in your review and completion of the AP.

It is apparent that the RI/FS should have been completed in three years and has been delayed over 8 years with no final RI/FS completion deadline established. The community of the Kalamazoo River and the State of Michigan cannot afford to allow the Liable Parties to cause further delays in the cleanup of the site or the NRDA process.

For the last 15 years or more, the public and the agencies have known that the only cleanup that meets all the ARARs and is protective of human health and the environment is the total excavation and removal of the PCBs for the site. Because this is the only cleanup remedy that will meet the State of Michigan's Water Quality Standards for PCBs of 0.000026 ug/l. It is also the only remedy that can realistically lower the PCB levels in fish so that the Fish Consumption Advisory can be removed and a health fishery restored. This is the only remedy that the community will accept. Further the trustees need to consider these standards in their reviews and incorporate them fully in the final assessment documents.

However, in a situation where the cleanup falls short of this goal, the funds collected

under the NRDA process should go first to the removal of all the remained PCBs and restoration of the site.

All PCBs must be removed from the wetlands and floodplains. This should be covered under the Superfund Cleanup, however if the cleanup fall short of this goal, the funds from the NRDA process must be used to restore fully the wetland and floodplain habitat(s).

Another KRPA recommendation is the restoration of all animal populations that have been devastated by the PCB contamination, including the fishery, eagle populations, mink and other identifiable species. Species protected by federal and state endangered species acts must be fully restored. Funds from the NRDA should be used to establish and maintain viable breeding populations.

Further, our recommendations include the removal of specific dams on Portage Creek and the Kalamazoo River that are not removed during the Superfund cleanup. Removing these dams will produce a run of the river warm water fishery, improved tourism and recreational opportunities. These dams include the City of Allegan Dam with the need to design a work plan that will protect the City's waterfront to include an off channel pond which could be constructed during the Superfund cleanup process at some additional cost. The other dams are the three MDNR dams at Trowbridge, Otsego, and Plainwell and the City of Otsego Dam and the Alcott Street Dam on Portage Creek.

Another recommendations is that the funds from the NRDA process be used to increase the depth of Lake Allegan and all the navigations channels and marinas on the downstream portion of the Kalamazoo River. These additional projects should be completed after the removal of the contaminated waste.

The KRPA believes that once the above recommendation have been accomplished that the balance of NRDA funds would go to acquire additional lands adjoining the Kalamazoo River to provide wildlife habitat and green space and also lands that can provide waterfowl habitat.

The KRPA believes strongly that all PCB s must be excavated via dry and wet dredging techniques from the Kalamazoo River and Portage Creek and disposed of offsite in an approved landfill away from the River and upland of all floodplains, as they existed at the prior impoundments. The liable parties have the resources to complete this cleanup within the next 10 years. The MDEQ must take over the completion of the cleanup and begin remedial action concurrently at all the units as of January 1, 2002.

The KRPA's comments are based on the assumption that the cleanup will remove the PCBs as much as possible (see standards) and the NRDA funds will be used to compensate the public for loss use of the resources. In addition, all NDRA funds should be kept and applied directly to the Kalamazoo River and Portage Creek areas that are part


of the site and not diverted to other unaffected tributaries and other parts of the state.

The KRPA, as the oldest and most active environmental group on the River looks forward too working with all the trustees in order to bring about the final resolution to these issues in an environmentally sound manner that is beneficial to the Kalamazoo River community and the Great Lakes. Please respond to issues raised in these comments.

S/S

I look forward to hearing from you and appreciate this opportunity to comment on a critical part the cleanup process leading to the complete restoration of the Kalamazoo River.

Sincerely yours,

A handwritten signature in cursive script that reads "Dayle L. Harrison". The signature is written in black ink and is positioned above the printed name.

Dayle L. Harrison, KRPA president

WRITTEN COMMENTS FROM CARDS COLLECTED AT THE 12/4/00 PUBLIC
MEETING ON KZLAMAZOO RIVER NRDA STAGE I PLAN
PLAINWELL COMFORT INN

From Mary Powers

Lisa,

Please send a copy or two of the Stage I Assessment Plan to the KRWC: Kalamazoo
River Watershed Council
132 N. Burdick Street, Suite 203
Kalamazoo MI 49007

I wasn't aware that the opportunity to restore non-PCB laden areas-

- Davis Creek, oily
- Arcadia Sewer, lots of sediment backups between western Michigan University and downtown Kalamazoo.

Is this the kind of stuff you're looking for?

Thank you (you're wonderful)

Mary Powers

616-345-9295

marybe@worldnet.att.net

.....
Recommendations for NRDA are:

1. The PRPs should have no involvement in this process. Their involvement only causes delays in the process to cost out the NRDA.
2. All the dams with the exception of Lake Allegan should be removed.
3. All restoration should be focused on the Kalamazoo River and Portage Creek. The restoration should not be conducted out-side the watershed or on unaffected tributaries on the Kalamazoo.
4. Removal of any remaining PCB waste, sediments and soil from the Superfund site.
5. Losses of uses in the Lake Michigan should be calculated in the NRDA.
6. Restore wetlands loss by the PCB contamination and the remediation.
7. Restore eagles and mink populations.
8. Restore the fisheries and fish habitat. Fish must be below 0.05ppm of PCBs.
9. Cost of keeping dams in place since 1987 to present.

.....
Lisa,

Please consider bird count data that may be available; especially with regard to predatory species that may have diminished populations as a result of PCBs.

Also, please put me on your mailing list and send a copy of your NRDA summary.

John Cooley

2504 Crescent Dr.

Kalamazoo, MI 49001
Cooley@wmich.edu

-
1. Removal of all PCB sediment including floodplains protection of fish wildlife public health at .012 ppm.
 2. Restore all wetlands.
 3. Restoration of all wetlands used wildlife habitat
 4. Removal of dams to create improved fisheries and recreational uses (except Lake Allegan) including canoeing –some white water –improve.
-

In assessing damages, the economic development potential lost due to its being a Superfund site should be included. Who would build a restaurant, riverfront development, etc. overlooking a Superfund site???

In Kayaking close-in to shoreline of all of Lake Allegan, there is a lot of man-made junk along the shoreline ~ i.e. Drums, tires, cans, lawn chairs and other items. Removal of this junk would significantly improve the sense of cleanliness of this portion of the river, and be a good “compensation”.

Lake Allegan has many shallow areas. While this has nothing to do with the contaminates, if dry dredging is done during clean-up, removal of additional material to add depth can also be a compensation.

Mark Huth
3779 Monroe Road
Allegan, MI
616-673-5500

Proposed Damage Assessment
Development of non-motorized (recreational river trailway)
located, developed, constructed along various river segments

Kalamazoo River Valley Trailway delivers a non-motorized facility from Battle Creek along the river through the City of Kalamazoo to Markin Glen County Park (Phase 1), on to village of Allegan (Phase 2)
Plan developed and approved by the City of Kalamazoo, March 2000.

For copy of plan and more information please call:
Richard Skalski
City of Kalamazoo
(616) 337-8617
SkalskiD@CZ.Kalamazoo.mi.us

.....

I am interested in seeing floodplain forest lands preserved along the Kalamazoo River and its tributaries as part of the NRDA restoration program for the following reasons:

1. The Nature Conservancy has recently compiled a biodiversity assessment of the Great Lakes basin (with the input of numerous agency and university scientists). This assessment has identified several major sections of Kalamazoo River floodplain as critical for conserving various components of Great Lakes biodiversity, including floodplain forests, marshes, and Neotropical(SP) migratory songbirds.
2. Many of these critical lands are privately owned and unprotected by conservation easements.
3. Protection of these lands would have major ecological benefits to water quality and aquatic species.

John Legge

The Nature Conservancy, Michigan Chapter

517-332-1741

jlegge@inc.org